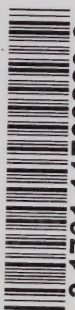


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Surveys, Mapping and
Remote Sensing Sector

Secteur des levés, de la
cartographie et de la télédétection



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**CONTRACTING-OUT BULLETIN
for
THE PRIVATE SECTOR**

PLANS FOR 1992-93



Energy, Mines and
Resources Canada

Énergie, Mines et
Ressources Canada

Canada

THE ENERGY OF OUR RESOURCES - THE POWER OF OUR IDEAS

L'ÉNERGIE DE NOS RESSOURCES - NOTRE FORCE CRÉATRICE





Surveys, Mapping and
Remote Sensing Sector

Secteur des levés, de la
cartographie et de la télédétection

CONTRACTING-OUT BULLETIN
for
THE PRIVATE SECTOR

PLANS FOR 1992-93

Prepared by

The Office of External Relations
Surveys, Mapping and Remote Sensing Sector
Energy, Mines and Resources Canada
March 1992



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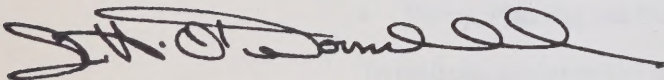
FOREWORD

I am pleased to present the third annual **"Contracting-Out Bulletin"** of the Surveys, Mapping and Remote Sensing Sector.

In addition to this Sector's responsibility for the fundamental surveying, mapping and remote sensing of Canada, we are committed to assisting the development of the Canadian geomatics industry by supporting new technologies and applications in the field of geomatics.

This annual bulletin on the Sector's contracting-out activities is published in a spirit of information- sharing. As well, the intent is to encourage continued fruitful associations with our private sector partners and our own clients.

If you have any comments or suggestions or, if you would like to be placed on the mailing list, please contact the Director of the Office of External Relations, listed under "Contacts".



J.H. O'Donnell

Assistant Deputy Minister



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Surveys, Mapping and Remote Sensing Sector

The Organization

The Surveys, Mapping and Remote Sensing Sector (SMRSS) is responsible for national geodetic surveys, cadastral surveys on Canada Lands, the maintenance of the International Boundary, the preparation and distribution of topographic, geographic, electoral and aeronautical maps and related digital files, and for the acquisition and use of remote sensing data. The Sector is now divided into eight responsibility centres that practise the disciplines associated with geographic information services. They are:

- The Geodetic Surveys Division
- The Legal Surveys Division
- The Topographic Mapping Division
- The Geographical Services Division
- The Canada Centre for Geomatics (Sherbrooke)
- The Canada Centre for Remote Sensing (CCRS)
- The Geographic Information Systems Division (GISD)
- Policy, Planning and Services Centre (PPSC)

To maintain comparability with last year's bulletin, these responsibility centres have been grouped in this bulletin under five types of activity.

Surveying

Surveying is undertaken by two divisions: the Geodetic Survey Division (GSD), and the Legal Surveys Division (LSD) which includes the International Boundary Commission (IBC). The Geodetic Survey Division prescribes and maintains the national geodetic networks and maintains a national data base of geodetic information. The Legal Surveys Division manages all cadastral surveys on Canada Lands (Indian reserves, national parks and historic sites and all Crown Canada lands in the territories and the offshore). The International Boundary Commission maintains the boundary between Canada and the United States.

Mapping

Mapping of Canada is undertaken in support of economic development and sovereignty. Three divisions are involved: the Topographic Mapping Division, the Canada Centre for Geomatics and the Geographical Services Division. The mapping activity provides national standards in topographic and geographic mapping and aeronautical charts. It manages the production and maintenance of maps of the National Topographic System and its related computer data base as well as geographic maps, the national atlas, geographical names publications, electoral maps, and aeronautical charts. The mapping activity also includes the undertaking of associated research and development.

Geographic Information Systems

The Geographic Information Systems Division is responsible for the development and application of GIS technology, and for the promotion of data, products and services of the Surveys, Mapping and Remote Sensing Sector. The Division fosters cooperation at the national and international levels among public private and academic organisations in support of the development of GIS and the promotion of applications.

Policy, Planning, and Services

The Policy, Planning and Services Centre (PPSC) performs many corporate functions. Among them are coordinating the Sector's activities, including those involving domestic and international relations; providing the Sector's strategic planning services; and, managing the reproduction and distribution of the Sector's maps, charts, and air photographs, as well as marketing cartographic products in digital and analog/video formats.

Remote Sensing

The Canada Centre for Remote Sensing (CCRS) is responsible for the planning, development and implementation of a national program for the acquisition of remote sensing data of the country's inland and offshore areas, for use by environmental and natural resource managers in the public and private sectors. Resource management and environmental issues are two of the Centre's main areas of research, including the monitoring and development of technology.

Contracting-Out Overview

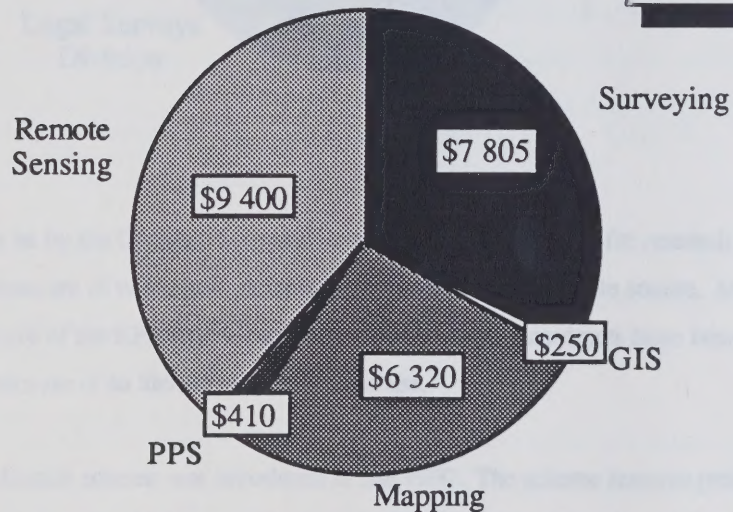
A contracting out plan for the former Surveys and Mapping Branch was approved by Treasury Board in 1977, amended in 1983, temporarily suspended in 1984 and reinstated in 1988 for the new Surveys, Mapping and Remote Sensing Sector. The plan calls for a reduction of person years and the conversion of that salary funding to contracting out funds. The total value of the Sector's contracting out program over a six-year period beginning in 1991-92 was estimated at \$159 627 000¹. This amount included \$75 543 000 in contracting-out funds for the plan negotiated with Treasury Board in lieu of person years. The plan has been adhered to.

During the fiscal year 1992-93 the Sector plans to contract out \$24 150 000 in geomatics products, services and related support services. The figure below shows the distribution of contracts between the various types of activities within the Sector.

Contracting-Out Program of SMRSS 1992-93

(Funds expressed in \$000's)

Total = \$24 185



1

- (a) Assuming a constant inflation rate of 5% and no Treasury Board Budget reductions;
- (b) For the years beyond 1991-92, much of the contracting-out for Legal Surveys Division will depend on the settling of land claims.

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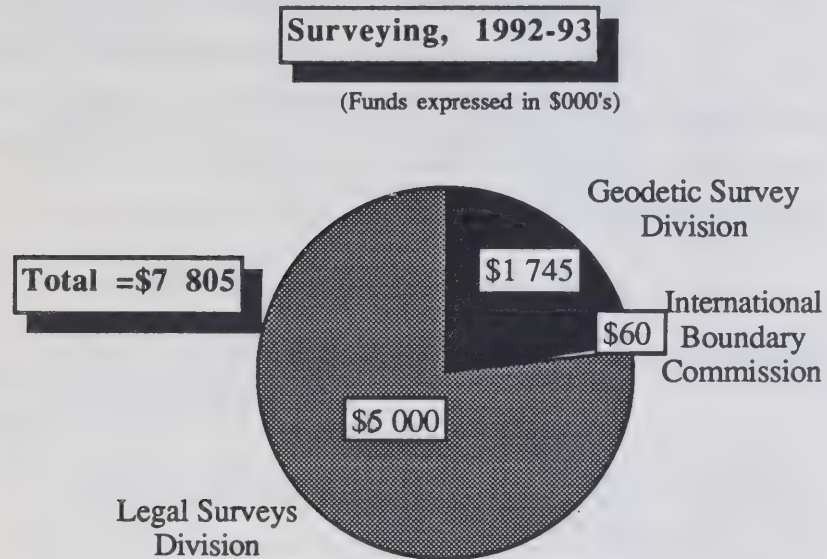


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SURVEYING

Overview

The figure below illustrates the summary of budgeted contract expenditures for Surveying in 1992-93.



Contractor Selection - General Procedures

Contracts let by the Geodetic Survey Division for field surveys or for research and development are of two types: request for proposal (RFP) and sole source. Most contracts are of the RFP type, although a number of R&D contracts have been sole-sourced because of an identified, unique expertise.

An accreditation scheme was introduced in late 1990. The scheme features periodic visits by an accreditation team to firms on the Department of Supply and Services' (DSS) vendor list for control surveys. The purpose of these visits is to verify the technical competency of the firms to perform the geodetic services offered. In 1991, 15 firms were visited by the accreditation team for a total of 31 so far. The program will continue in 1992-93.

A new form for applying to be on the Supply and Services Vendors list for geodetic services will replace the existing form in April, 1992.

The down-time provisions for inclement weather were reviewed, resulting in cost sharing for documented down-time. At this time, provisions also exist for considering down-time during ionospherically active periods during GPS surveys.

Except for comprehensive native land claims (i.e. IFA and CYI) surveys, which are let through the RFP process, the bulk of the survey contracts let in the regions by the Legal Surveys Division are awarded on a rotational basis. That is, lists of eligible land surveyors are maintained in each region, and a new contract is awarded to the next surveyor on the list. These contracts average about \$10 000 in value, and do not normally exceed \$25 000.

Departmental authority has been granted to Regional Surveyors to use the sole-source method on a rotational basis, for contracts valued up to \$30 000. For those valued between \$30 000 and \$50 000, a multiple-quote approach will be used, with quotes reviewed from at least three firms on the eligible list. For those valued at over \$50 000, the contract will be let through the Department of Supply and Services, via the RFP route.

Strategic Plans

The Sector has compiled, and is continually updating, a long term strategic plan. Some of the planning aspects relevant to the Canada Centre for Surveying are listed below.

- Geodetic Survey will continue a comprehensive program to bring primary geodetic control from inaccessible locations to more useful ones. This will involve the establishment of GPS positions on selected bench marks, at road accessible locations, throughout Canada. The program was contracted first in 1990-91 and contracting will continue in 1992-93. It is expected to be completed in the late 1990's.

- New EDM calibration baselines continue to be constructed in the provinces at the rate of one or two per year. Some calibration baselines are being extended into six to eight station calibration basenets, to support the growing use of GPS methods. The first basenets were measured in 1989-90, by Sector personnel, in cooperation with provincial surveying and mapping agencies. There are now seven such basenets.
- It is expected that mapping control survey requirements in the North will continue to diminish.
- The requirements for mapping control in southern Canada are still uncertain, since it is not clear what additional control may be required in view of possible recompilation of existing maps, or to satisfy federal-provincial agreements to access provincial digital map data.
- The requirements for high-precision surveys to monitor crustal movements are expected to continue.
- Additional research contracts are anticipated in the areas of altimetry/geoid development, development of the GPS-based Active Control System, software for GPS data processing, continued development of the National Geodetic Information System and the automated Canada Lands Information System.
- Levelling contracts will continue at about the same level in 1992-93. The data acquisition for the NAVD project is complete. The levelling requirements now consist of maintenance and extension of the vertical control networks.
- A proposal for the establishment of a high precision network to support ACS development and to meet users' increasing accuracy needs is being developed.
- In 1990-91, additional resources for the Legal Surveys Division were obtained from Treasury Board and from within the Department. These were required in view of the increased workload of the Division and the need to revitalize the Canada Lands Surveys System. Some \$1.1 million of these additional funds were expended on contracts in 1990-91, and this level of funding is expected to continue or increase slightly through FY 1994-95.

- It is estimated that the native population will double over the next 20 years, placing even greater demands on the services of the Legal Surveys Division.
- Work is underway to prepare new standards and to update existing ones for legal surveys related to Canada Lands.

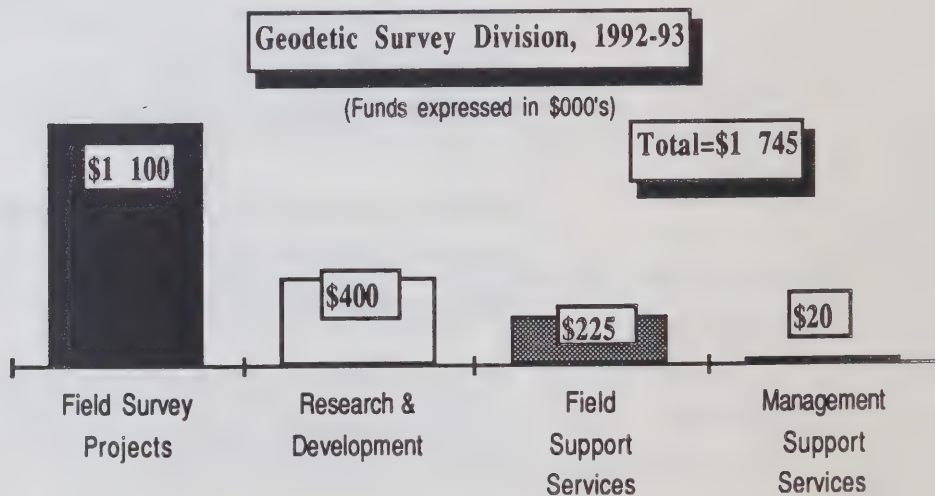
Comprehensive Native Land Claims

A considerable increase in the Legal Surveys work load is expected during the next 10 to 15 years. This is due to the surveys required for comprehensive native land claim settlements. The bulk of this survey work will be contracted. Funding for the Council of Yukon Indians (CYI) land claim is expected to start in late 1992-93 or 1993-94.

GEODETIC SURVEY DIVISION (GSD)

Overview

The figure below illustrates the estimated contract values in the four main areas of activities of the Geodetic Survey Division (GSD) for 1992-93



Research and Development 1992-93

A number of research projects have been identified as possibilities for a share of the approximately \$400 000 to be allotted to contracting. The following is a list of the identified projects, beginning with contracts that are a continuation from the 1991-92 fiscal year:

- kinematic GPS positioning;
- geoid improvement methodology;
- geodetic network strength analysis - model development

Below is a list of planned contracts for 1992-93:

Project	Description
Development of GPS Active Control System	The work will concentrate on the enhancement of GPS data acquisition, processing and communication capabilities. It will include software and technology development to facilitate differential GPS and user positioning application interfaces.
Improvement of Geoid and Satellite Altimetry Data Applications	Work will include development of software and a data base for improved geoid determination across Canada and, implementation of techniques for use of satellite altimetry data in geoid determinations and precise topographic profiling.
Establishment of VLBI Fiducial Sites	Development of a geodetic VLBI system to facilitate regular observations between Algonquin and Yellowknife; commence assembly of a 3 m transportable field VLBI system to provide reference framework at selected ACS sites.
Robustness Analysis	Consulting to support development of data analysis methods.
EDM	Consulting to support development of better data reduction and analysis for precise EDM surveys.

Field Surveys 1992-93

Project	Description
Bench Marks across Canada	Bench mark installation across Canada; estimated at 1800 kilometres.

Levelling in Newfoundland and New Brunswick	Levelling in Newfoundland (North of Gander) and in New Brunswick (Edmunston to Fredericton to St-John); estimated at 635 kilometers.
Levelling in Quebec	Levelling in Quebec (around Lac St-Jean and various lines from Lac St-Jean south to St-Lawrence River); estimated at 900 kilometers.
Levelling in British Columbia	Levelling in British Columbia (from Duncan to Port Renfrew to Victoria and from Kelsay Bay to Winter Harbour); estimated at 700 kilometers.
Levelling in Saskatchewan	Levelling in central and southern Saskatchewan; estimated at 750 kilometers.
GPS on Bench Marks - Newfoundland	GPS observations on Bench Marks at about 110 stations.

Support of Management Activities

On occasion, contracts are let to support planning and other administrative activities. These services will continue in 1992-93, and the total cost is estimated at \$20 000.

Support of Field Activities

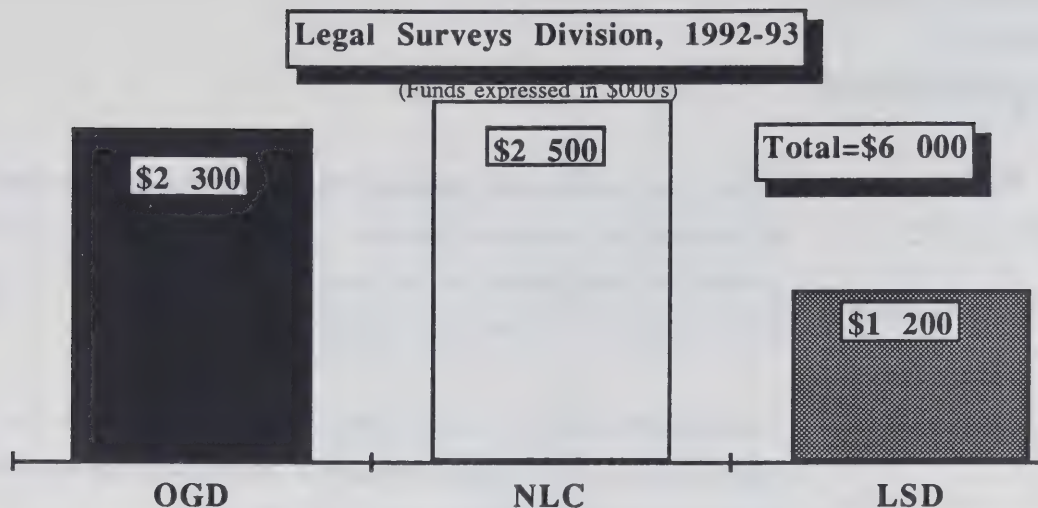
A number of contracts are let to support in-house activities. These include rentals of survey equipment (notably GPS receivers), aircraft leases, etc. The total cost in 1992-93 amounted to \$200 000. The 1992-93 forecast is that contracts and values will be approximately in the amount of \$225 000, slightly more than costs for 1991-92.

LEGAL SURVEYS DIVISION (LSD)

Overview

The figure below shows the estimated field surveys and mapping contract values planned to be awarded by the Legal Surveys Division (LSD) for 1992-93 according to the three main sources of funding : other government departments (OGD), Native Land Claims (NLC's) which include the Inuvialuit Final Agreement (IFA)* and the Council of Yukon Indians (CYI), and finally the Legal Surveys Division's own operational budget (LSD).

* Note: IFA was formerly referred to as the Committee for Original Peoples' Entitlement (COPE).



Field Surveys and Mapping 1992-93

All of the Legal Surveys Division field surveys and mapping projects are contracted to the private sector. These include contracts for mapping, for Regional Surveyor Plans (RSP) and for conventional cadastral surveys. Funds for this year's projects will come from the Department of Indian and Northern Affairs, the Department of the Environment and from the Legal Surveys Division. It is expected that about the same numbers of small contracts for mapping (17), Regional Surveyor Plans (12), and conventional surveys (257) as were let in the current year will again be let in the regions in 1992-93. These will also include the preparation of existing survey data for loading into the Automated Canada Lands Information System (ACLIS).

Native Land Claim Settlements 1992-93

Surveys for the Inuvialuit Final Agreement (IFA) are administered and managed by the Legal Surveys Division. Funding for these projects comes from a special allotment that is not included in the operating budget of the Legal Surveys Division. In 1992-93, it is expected that a special allotment of about \$1 500 000 will be awarded by the Government of Canada for contracting surveys related to land claim settlements. Approximately six contracts will be let for boundary surveys.

While major survey work is not likely to start until 1993-94 for the Council of Yukon Indians (CYI) land claims, initial surveys may be done in 1992-93 with contracts totalling about \$1 000 000. (if funding is approved by TB in FY 1992-93).

INTERNATIONAL BOUNDARY COMMISSION (IBC)

Field Surveys 1992-93

The work of the International Boundary Commission, that of maintaining, surveying, and regulating the International Boundary between Canada and the United States, is governed by a treaty between the two countries. Responsibility for the boundary is jointly held by the Canadian and U.S. Sections.

The Canadian Section of IBC plans to let a vista clearing contract on the Quebec-Maine boundary. The contract is estimated at \$60 000 and it should cover a 30 km section of the Highlands, south of Lac Megantic.

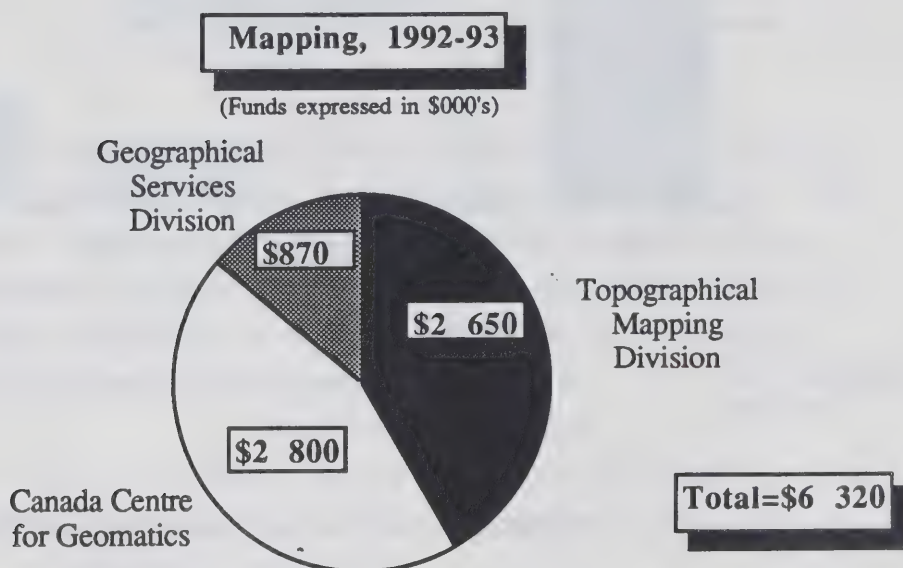
Boundary Mapping

A plan has been developed to replace the official, obsolete maps of the International Boundary between Canada and the United States with new, digital maps. The digital data would come from the Topographical Mapping Division of the Canada Centre for Mapping and from the U.S. Geological Survey. Investigation is being carried out to share the gathering of data with other agencies and produce multipurpose maps which would answer the needs of more users while allowing for cost-sharing. A decision on whether the project will go ahead is expected sometime in 1992.

Mapping

Overview

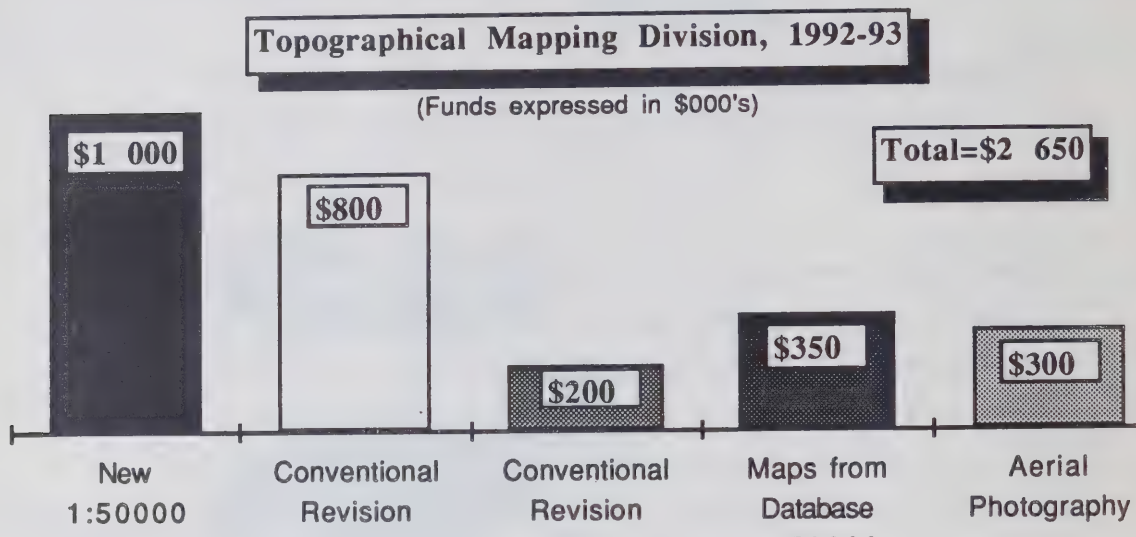
The following figure shows the summary of budgeted contract expenditures for Mapping in 1992-93.



Topographical Mapping Division (TMD)

Overview

The Topographic Mapping Division (TMD) is responsible for the production and revision of National Topographic Series (N.T.S.) cartographic and digital products and production of National Topographic Data Base data by in-house stereo-compilation.



Production 1992-93

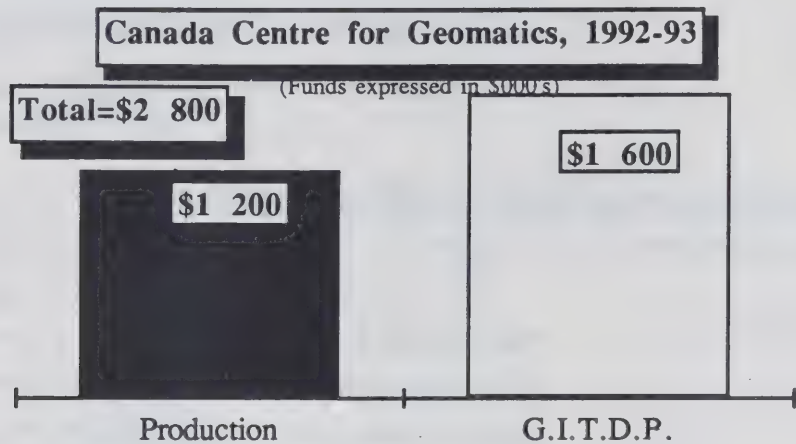
The following table shows the estimated contract 1992-93 values in the main areas of activity of TMD for 1992-93:

Activities	Projected Expenditures	Projected Output
1:50 000 New Mapping (monochrome)	1,000,000	100
1:50 000 Conventional Revision	800,000	80
1:50 000 Maps from data base	350,000	30
1::250,000 Conventional Revision	200,000	30
Aerial Photography	300,000	-
Total contracting-out:	\$2,650,000	

CANADA CENTRE FOR GEOMATICS (CCG)

Overview

The following figure shows the estimated contract values in the two main areas of activity of the Canada Centre for Geomatics (CCG) for 1992-93.



Geographic Information Technology Development Program (GITDP)

The fiscal year 1992-93 will be the fourth full year of the federal-provincial, cost shared Geographic Information Technology Development Program((GITDP). This is a five year program of \$16 million funded equally by the federal and all provincial governments. This program provides funding to industry through the provinces and their geomatics activities and allows for increased activity, a more cost effective approach and increased contract funds for the private sector.

In 1992-93, it is anticipated that \$1 600 000 will be allocated to contracting under the GITDP. The following is a list of potential activities where specific procurements may be required under the program.

Activities

Data scanning/structuring 1:50 000
Existing data structuring 1:50 000
Digital data stereoecompilation 1:50 000
Data from other sources
Data structuring 1:250 000
Revision 1:250 000 data files
Technology development

Production 1992-93

In 1992-93 it is forecast that approximately \$1 200,000 will be allocated to production work. The emphasis will continue on scanning existing 1:50 000 maps and structuring existing 1:250 000 data, through direct contracting or through the GITDP.

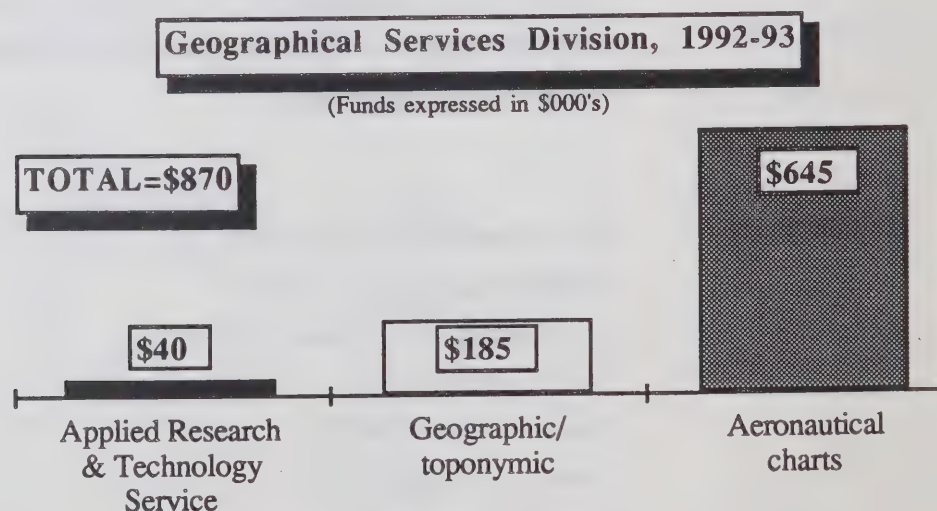
We intend to intensify contracting-out in scanning and structuring data. 500 scanned files 1:50K and 200 structured files 1:250K will be produced on contract in order to continue the program established last year.

GEOGRAPHICAL SERVICES DIVISION (GSD)

Overview

The Geographical Services Division (GSD) contracts to the private sector in support of four main services: the National Atlas Information Service, for thematic geographic research and value-added products; the Canadian Permanent Committee on Geographic Names and the Toponymy Section, for publishing documents on approved Canadian place names and feature names; the Aeronautical Charts Information Service for publishing air navigation information; and the Applied Research and Technology Service, supporting high technology in geographic and air navigation applications.

The figures below show the estimated contract values in the three main areas of activity of the Geographical Services Division for 1992-93.



**Geographical
Maps and
Information
1992-93**

In 1992-93 it is anticipated that about \$100 000 will be available for contracting-out for the production of geographic maps and information. The following is a list of potential activities where specific procurements may be required.

Activities

National Atlas

General Geographic Research
Value-added Projects

**Toponymic
Information
1992-93**

In 1992-93, it is anticipated that about \$85 000 will be available for contracting-out for toponymic information activities. The following is a list of potential activities where specific procurements may be required.

Activities

**Canadian Permanent
Committee on
Geographic Names**

Publishing
Consultation

**National Toponymic
Data Base**

Data Collection

**Aeronautical
Charts and
Information
Publications
1992-93**

In 1992-93 it is anticipated that about \$645 000 will be available for contracting-out for aeronautical charts and information publishing activities. The following is a list of potential activities where specific procurements may be required.

Activities

Canada Flight Supplement
Canada Air Pilot
Water Aerodrome Supplement
Flight Planning & Procedures
Criteria for the Development of
Instrument Procedures
Designated Airspace Handbook
Catalogues
Data Input-CANAC System

**Applied Research
and Technology
Service
1992-93**

In 1992-93 it is anticipated that about \$40 000 will be available for contracting-out for Applied Research and Technology activities.

Geographic Information Systems

Overview

The Geographic Information Systems Division is responsible for the development and application of GIS technology, and for the promotion of data, products and services of the Surveys, Mapping and Remote Sensing Sector. The Division carries out these responsibilities through a series of activities related to the following programs and services:

- **GIS Technology Development and Applications:** The Division develops applications to promote the use of Sector data and data bases within the National GIS Technology Centre. As well, the Division promotes and conducts research and development leading to improved Canadian GIS technology.
- **Coordination of GIS-related activities:** The Division performs the necessary technical functions for the coordination of GIS-related activities in the federal government, through the Inter-Agency Committee on Geomatics (IACG). The Division also develops long-term objectives and strategies on GIS matters for the Sector.
- **Technology Transfer:** The Division develops training and education in GIS for professionals in the federal government and the private sector.
- **Promotion:** The division promotes Canadian GIS technology and GIS expertise both nationally and internationally.

The estimated GIS Division contracting-out budget for the 1992-93 fiscal year is \$250 000.

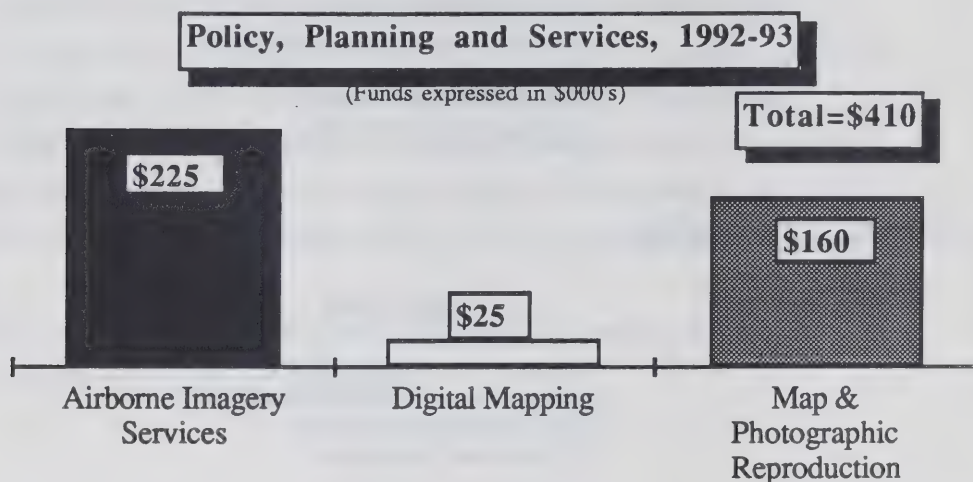
Major Projects 1992-93

Project	Description
GIS Spatial Browser	To develop a GIS workstation interface to browse through the universe of data available to the user to provide a window to identify information requested by the user and to develop a software product that is marketable.
GIS Training Modules	To develop a series of GIS course modules for the training and professional development of SMRS Sector managers and staff, and general users of GIS within government and the private sector. These modules could equally serve as a basis for training international personnel in GIS. Deliverables will include a comprehensive set of course notes for both students and instructors on various GIS topics.
Database Integration	To integrate the DELTA-1 GIS database model with geographical information systems.

Policy, Planning and Services

Overview

The figure below illustrates the estimated contract values in the three main areas of activity of the Policy, Planning and Services Centre for 1992-93:



Map and Photographic Reproduction

1992-93

Activities

(\$000's)

Photographic Reduction. Reduce standard N.T.S. negatives 30" by 36", four times on high quality resolution film.

25

Photo-Mechanical Services.

125

- Contact printing
- Colour proofs
- Peel coats
- Etch scribes
- Camera

Phototype

10

Sub-total

\$160

Airborne Imagery Services

1992-93

Activities

(\$000's)

The photographic imagery (prints) and mosaics from aerial negatives

\$225

- Black and white contact prints
- Photographic mosaics and enlargements on photographic paper
- Uncorrected and corrected diapositives on stable base

Digital Mapping

1992-93

Activities

(\$000's)

Reproduction and duplication of digital maps on 9-track magnetic tape in the same medium and onto CD ROM and floppy disk.

\$25

Remote Sensing

Overview

The contracts awarded by the Canada Centre for Remote Sensing (CCRS), a research organization involved in long-term research, tend to be for several years, are highly specialized, and may vary from what is listed here, depending on developments in current projects. CCRS does not have what might be considered production contracts whose net result is a specific number of products. In addition, there are few companies qualified for the contracts. Virtually all contracts are placed through the Department of Supply and Services Canada (SSC). The list below does not include contracts for purchasing off-the-shelf hardware or for non-technical support services.

The Canada Centre for Remote Sensing has budgeted contracting-out expenditures of \$9 400 000 for the 1992-93 fiscal year.

Major Projects Office

1992-93

Project Description

Preparation of CD-ROMs continues. Sample Data Sets and training materials on the use of SAR imagery in various applications. Various contractors will be used.

Market analysis for RADARSAT data. Contract in effect.

Development of various modules in the System of Hierarchical Resources Inventory Experts. This is a series of expert systems that will allow remotely sensed data to be integrated with GIS data. The initial design application is for use in the B.C. forest inventory. The project is partly funded through the Department of Industry, Science and Technology Canada (ISTC). Contract in effect.

Provision of research support for development of knowledge-based methods. Contract in force.

Provision of research support for scene physics. Contract in force.

Enhancements to various commercial image analysis systems to handle SAR imagery.

Development of a Photo Interpretation Keys Expert Systems (PIKES). Contract in effect.

Applications Division

1992-93

Project Description

The operation and maintenance of the Remote Sensing On-Line Retrieval System (RESORS). Contract to be renewed.

Hydrology/agriculture and geology radar applications development. Contracts in force.

International applications development. Bids received through SSC. Proposal under evaluation (as of January 1992).

Environmental monitoring and modelling. Bids received through SSC. Proposal under evaluation (as of January 1992).

Forestry applications development. Contracts in force.

A variety of other smaller contracts are in force to support scatterometer research, technology transfer and the development of algorithms for ice image interpretation. Contracts in effect.

Data Acquisition Division

1992-93

Project Description

Operation and maintenance of a Crown-owned Convair CV-580 aircraft and marketing of radar data acquisition services. Present contract expires December 31, 1992. SSC will be issuing an RFP in 1992 for a new contract..

Data acquisition of electro-optical and related data. Contract in effect.

Interferometric SAR evaluation study, SAR geometric study, and SAR mosaic. Contract in effect.

Operational support contract for two satellite receiving stations and archiving of satellite data. Two contracts in effect, one of which expires December 31, 1992. SSC will be issuing an RFP in 1992 for a new contract.

Contract for marketing, sale, generation and distribution of satellite data products. Contract in effect.

Support for radar applications research. Contract in effect.

Operational support contract for processing of ERS-1 synthetic aperture radar data at the Gatineau Satellite Station. Contract in effect.

Systems Technology Division

1992-93

Project Description

Completion of a system to correct NOAA global area coverage data and to produce wide-area NOAA geocomposite images.

Procurement of two ARIES-4000 image analysis systems with SAR image processing and GIS data integration software.

Procurement of a system to quicklook, catalog, transcribe and process the optical and radar data from the Japanese ERS-1 satellite.

Procurement of a personal-computer based spaceborne SAR processor.

Development of a spaceborne quicklook SAR data processing technology and new SAR processing algorithms.

Procurement of a colour digital continuous tone printer subsystem to produce quick turnaround high resolution prints and transparencies of graphic and imagery media.

Procurement of software to transcribe and reformat remote sensing data from multiple sources and to offer digital products on personal computer compatible media.

Procurement of a replacement system to transcribe and process airborne data acquired by the CCRS aircraft.

Procurement of software and hardware to access and manage Global Change and other environmental data.

Operational support contracts for the generation of remote sensing products.

Operational support contracts for informatics and geomatics services.

LIST OF CONTACTS

AREA OF RESPONSIBILITY	CONTACT	ADDRESS	TELEPHONE/FAX
Surveys, Mapping and Remote Sensing Sector	J. H. O'Donnell Assistant Deputy Minister	Room 1434 580 Booth Street Ottawa, Ontario K1A 0E4	Tel: (613) 995-4449 Fax: (613) 995-0842
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Geodetic Survey Division	J.D. Boal Dominion Geodesist and Director	Room 426 615 Booth Street Ottawa, Ontario K1A 0E9	Tel: (613) 995-4282 Fax: (613) 995-3215
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- Provides a reliable system of surveys, maps, remotely sensed data and geographically referenced information covering the Canadian landmass, in support of national sovereignty, defence, the environment, socio-economic development and the governing of Canada.
- Promotes the development of surveying, mapping, remote sensing and geographic information system technology.
- Fosters the growth of related expertise in both the public and private sectors and contributes to the development of the Canadian economy and international trade.

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